Agenda

- Overview of ASHRAE section 5 & 6
  - Energy management plan and operations/maintenance plan
- Workshop – questions and areas of concern
- Lunch
- Presentation – City of Seattle
- Workshop – rulemaking topics and priorities

Disclaimer: Any comments we make today about specific rules are subject to change through the rulemaking process

Team Commerce

- Emily Salzberg — Managing Director, Buildings Program
- Chuck Murray — Policy Specialist and Technical Lead
- Austin Scharff — Energy Rules and Legislative Coordinator
- Paul Currington — Tech Support

- and a huge supporting cast…..

- Webpage: www.commerce.wa.gov/buildings
- Email: buildings@commerce.wa.gov

Associates

WSU Energy Program

- David Van Holde — Professional Engineer
- Karen Janowitz — Project Manager
- Jake Volkman — Energy Program Coordinator

SBW / 2050 INSTITUTE — EUI target setting

- Faith DeBolt
- Poppy Storm

Instructions for Commerce

RCW 19.27a.210

"In developing energy performance standards, the department shall seek to maximize reductions of greenhouse gas emissions from the building sector".

Clean buildings web page

- Workshop Schedules
- Agendas
- Meeting Minutes
- Meeting Recordings
- Meeting Presentations
- Draft rules

- Updated as we go
- www.commerce.wa.gov/buildings

Linked from web page

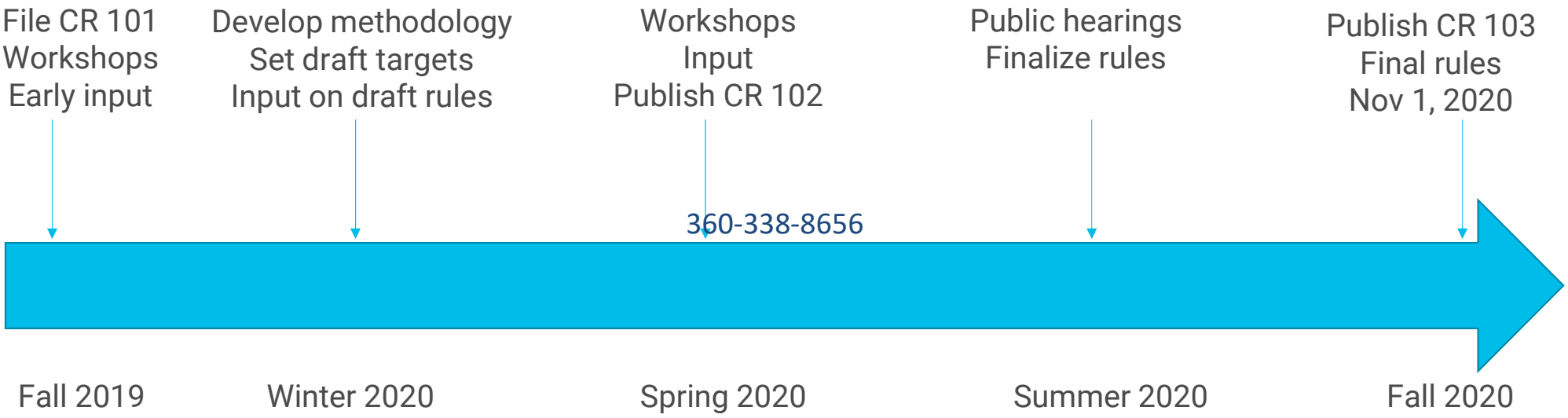
- Session Law
- RCWs
- Read Only ANSI/ASHRAE/IES Standard 100-2018
- ENERGY STAR Portfolio Manager

- www.commerce.wa.gov/buildings

House Bill 1257 RCW

- 19.27A.200 State energy performance standard—Definitions.
- 19.27A.210 State energy performance standard.
- 19.27A.220 State energy performance standard—Early adoption incentive program.
- 19.27A.230 State energy performance standard—Limit on early adoption incentive payments.
- 19.27A.240 State energy performance standard—Early adoption incentive payment administration

2019-2020 schedule



The fall schedule and tentative subjects

- Friday, November 8, 2019
  - Orientation, Standard 100 – Sections 5&6
- Monday, November 18, 2019 [note the change in date]
  - Building types, Benchmarking, Standard 100 – Sections 5&7
- Wednesday, December 4, 2019
  - Audits and Implementation Standard 100 – Sections 8&9
- Tuesday, December 10, 2019
  - EUI target setting, Conditional compliance investment criteria
- Thursday, December 19, 2019
  - EUI target setting, Conditional compliance investment criteria

Department of Commerce

Washington Building Energy Performance Standard

WORKSHOP 1

Chuck Murray
SR ENERGY POLICY SPECIALIST

11/13/2019

Primary rulemaking subjects

- Adopt with modifications ASHRAE Standard 100
- Set WA specific Energy Utilization Targets (EUIt) for select building types
- Adopt a life cycle cost methodology in support of the conditional compliance method
- Develop administrative procedures
  - Mandatory reporting and documentation
  - Incentive application, implementation and qualification
- Procedures for incentive payments
  - Commerce / Utilities

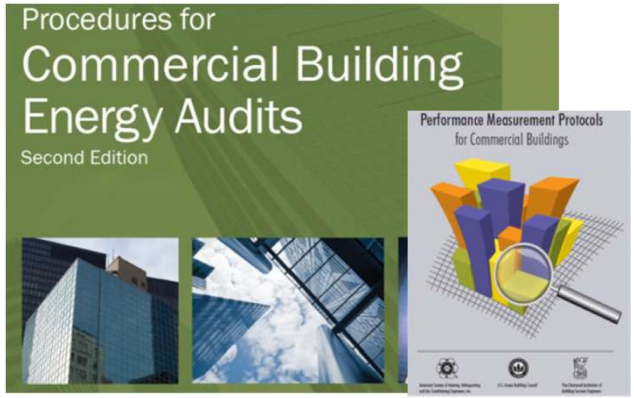
RCW 19.27a.210 & standard 100

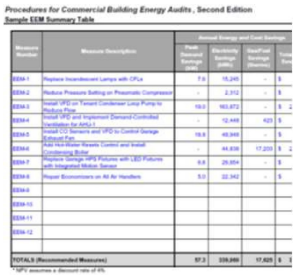
STANDARD

ANSI/ASHRAE/IES Standard 100-2018
(Supersedes ANSI/ASHRAE/IES Standard 100-2015)
Includes ANSI/ASHRAE/IES addenda listed in Annex N

Energy Efficiency in Existing Buildings

Direct Reference





Informative background and tools

ANSI/ASHRAE/IES Standard 100-2018
4. COMPLIANCE REQUIREMENTS

- All buildings
  - 5. ENERGY MANAGEMENT PLAN
  - 6. OPERATIONS AND MAINTENANCE REQUIREMENTS
  - 7. ENERGY-USE ANALYSIS AND TARGET REQUIREMENTS
- Buildings that exceed EUI targets and buildings without EUI targets
  - 8. ENERGY AUDIT REQUIREMENTS
  - 9. IMPLEMENTATION AND VERIFICATION REQUIREMENTS
    - Developed to meet EUI target

      OR
    - Developed to adopt all cost-effective measures

Cast of Characters
Standard 100 Definitions & RCW 19.27a.200

- ***authority having jurisdiction (AHJ):*** *Commerce
- ***building manager:***
- ***building operator:***
- ***building owner:*** *an individual or entity possessing title to a building
- ***energy manager (EM):***
- ***qualified commissioning authority:***
- ***qualified energy auditor:***
- ***qualified person:***

* Standard 100 modified by RCW

Cast of Characters
Standard 100 Definition

- ***building manager:*** the person responsible for maintaining the *building*, its envelope, and its energy-using systems. The *building manager* may also be the person responsible for expending funds on capital improvements to the *building*.
- ***energy manager (EM):*** the individual, identified by the *building owner*, who has responsibility for ensuring that energy use in the *building* is minimized without compromising the indoor environmental quality (*building* indoor air quality, thermal comfort, visual acuity and comfort, sound quality). The *EM* may be the *building owner*, a tenant, an employee of the owner or tenant, or a contractor retained by the owner or tenant.

Cast of Characters
Standard 100 Definition

- ***qualified energy auditor:*** a person having training and expertise in *building* energy auditing; any one of the following:
  a. A licensed professional architect or engineer in the jurisdiction where the project is located
  b. An *energy auditor*/assessor/analyst certified by ASHRAE or AEE for all *building* types, or certified by
  c. BPI or RESnet for residential *buildings*
  d. A person qualified by the *AHJ*

Consider any local professional designations that might be relevant

4. COMPLIANCE REQUIREMENTS

- 4.2 **Energy Management Plan and Operations and Maintenance Program**
  - **4.2.1 Operations and Maintenance.** The *building manager* shall comply with the operations and maintenance (O&M) requirements of Section 6
  - **4.2.2 Energy Management Plan.** The *building manager* shall comply with the energy management requirements of Section 5

Administrative Requirements

- RCW 19.27a.210 (5) The department must develop a method for administering compliance reports from building owners.
- **Std. 100**
  - **4.4.1 Administrative Requirements.** Administrative requirements relating to permits, enforcement by the *AHJ*, locally adopted energy standards including energy performance targets, interpretations, claims of exemption, and rights of appeal are specified by the *AHJ*.
  - *Opinion: the reporting forms included in Std. 100, Normative Annex C are inadequate*

5.1 Establish the Energy Management Plan

- **5.1.1** The *building owner* shall designate an *energy manager* (*EM*) to develop and *maintain* an energy management plan for the *building*.
- **5.1.2** The energy management plan shall incorporate the following.
  - **5.1.2.1** An *energy accounting system*….
  - **5.1.2.2** In the initial year of compliance, the *building*'s *energy-use intensity* (*EUI*).
  - **5.1.2.3** Annual updates of the *net energy* use and *EUI*.
  - **5.1.2.4** Annual comparison of the net *EUI* to the *energy target*.
  - **5.1.2.5** Documentation of original, current, and changes in number of occupants, weekly operating hours, or time of day scheduled for occupancy, production rates, and energy using equipment that would have caused change in the measured *EUI*.
  - **5.1.2.6** Energy audit reports and recommended *energy efficiency measures*
  - **5.1.2.7** A list of *EEMs* that have been implemented and dates of implementation, including the following:

5.1 Establish the Energy Management Plan

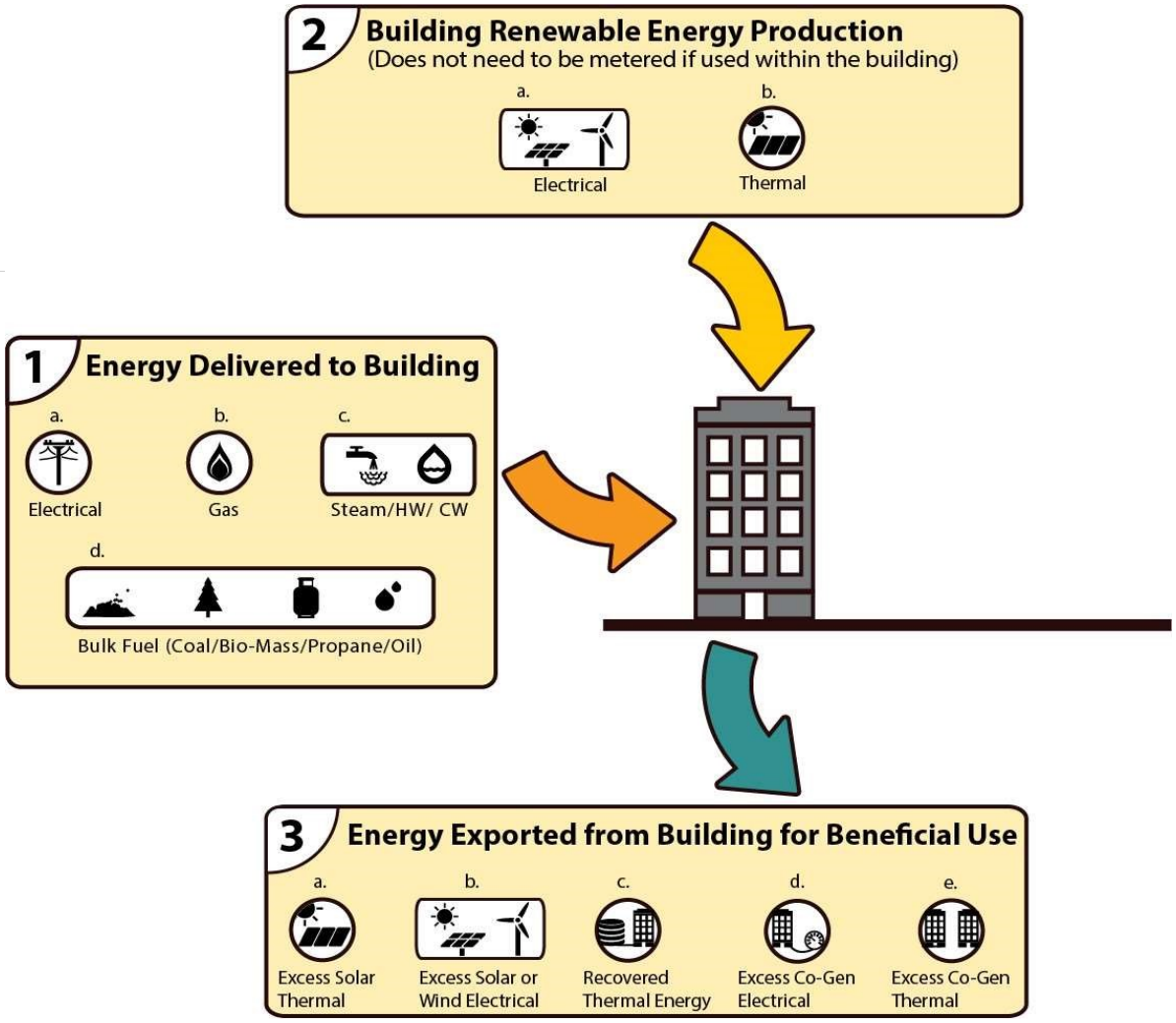
- **5.1.2** The energy management plan shall incorporate the following.
  - **Continued…**
  - **5.1.2.6** Energy audit reports and recommended….
  - **5.1.2.7** A list of *EEMs* that have been implemented…..
  - **5.1.2.8** A method to inform occupants about the benefits…..
  - **5.1.2.9** A training plan for the O&M personnel…..
  - **5.1.2.10** A *capital management plan*….
  - And more

5.1 Establish the Energy Management Plan

- **5.1.3** The *EM* shall provide a copy of the energy management plan to the *building* occupants and other stakeholders annually.
- **5.1.4** The *building owner* shall review and sign the energy management plan annually.

5.2 Building Energy Monitoring.

AKA Benchmarking



5.2 Building Energy Monitoring.

- 5.2.1 Provide measured net energy consumption data for each building,……
- 5.2.2 Energy-use data for each type of energy imported into and exported from the building shall be collected
- 5.2.3 Energy Conversion Factors.
- 5.2.4 The energy accounting system shall perform the following……

- Align with Energy Star Portfolio manger already required by RCW 19.27a.170

RCW 19.27a.170

- (5) Based on the size guidelines in subsection (4) of this section, a building owner or operator, or their agent, of a nonresidential building shall disclose the United States environmental protection agency's energy star portfolio manager benchmarking data and ratings to a prospective buyer, lessee, or lender for the most recent continuously occupied twelve-month period.

6. OPERATIONS AND MAINTENANCE REQUIREMENTS

- 6.2 Operations and Maintenance Program. A formal operations and maintenance (O&M) program shall be established and implemented in order that the building energy-using systems achieve their intended energy efficiency throughout their service life.
- 6.3 Operation and Maintenance Implementation
  - Normative Annex L .
    - ANSI/ASHRAE/ACCA Standard 180-2012
- 6.4 Operations and Maintenance Tasks
  - Informative Annex D

Normative Annex L

- **L1. RESPONSIBLE PARTY -** The *building owner*
- **L2. OPERATIONS AND MAINTENANCE PROGRAM**
  - **L2.1 Inventory of Items to be Inspected and Maintained**
  - **L2.2 Maintenance Plan Development**
  - **L2.2.1 Performance Objectives**
  - **L2.2.2 Condition Indicators**
  - **L2.2.3 Inspection and Maintenance Tasks**
  - **L2.2.4 Inspection and Maintenance Task Frequencies**

Informative Annex D.

Example of detail

D2. DOMESTIC HOT-WATER SYSTEMS

D2.1 General Requirements

D2.1.1 O&M requirements for domestic hot-water (DHW) systems include all applicable items in Section 6 plus the following.

D2.1.2 Securely and visibly locate a list of operating parameters, such as temperature set points, pressures, and operating schedule, at each piece of equipment.

D2.2 Hot-Water Heaters

D2.2.1 *Maintain* proper combustion efficiency—carry out a combustion analysis and carbon monoxide testing at least annually and make necessary corrections to achieve rated efficiency and safety.

Exception to D2.2.1: The input capacity of the heater is less than 100,000 Btu/h (29,310 W)

D2.2.2 Deenergize booster heaters when the serviced equipment is not in use or is in standby mode. Make allowance for warm-up time in heater schedule.

D2.2.3 Control the DHW heater so that DHW temperature is maintained between 120°F (49°C) and 125°F (52°C).

Exceptions to D2.2.3:

Systems dedicated to serving equipment requiring higher water temperatures,

Systems that use a water heater to meet both domestic hot-water needs and space heating load.

Standard 180 (referenced, but not specified)

Table 5-5 Chillers—Air-Cooled

	Normative	Normative	Normative	Informative
	Inspection Task	*Maintenance Task*	Frequency*	Recommended *Corrective Action*
a	Perform chemical testing of system water.	Treat as needed to ensure water chemistry and freeze protection target levels are being maintained.	Quarterly	Repair *equipment*, and treat as needed to ensure proper water chemistry.
b	Check control system and devices for evidence of improper operation.	Clean, lubricate, and verify proper operation.	Semiannually	Repair or replace as needed to ensure proper operation.
c	Check fan-belt tension, check for belt wear, and check sheaves for evidence of improper alignment or evidence of wear.	Correct tension and sheave alignment.	Semiannually	Replace belts and sheaves as needed to ensure proper operation.
d	Check variable-frequency drive for proper operation.	Correct as needed. Clean housing, and tighten connections as needed. Clean or replace air filter	Semiannually	Repair, replace, or restore as needed to ensure proper operation

Administrative Requirements

- Section 6 provides guidelines for development and implementation of a custom implementation plan for each building
  - Allows a good deal of flexibility
  - Provides detailed direction and examples but not specific requirments
- What reporting details will be required to demonstrate Section 6 has been developed and implemented?

Thank you!

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Department of Commerce

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